

III. REMARKS

In the Office Action, Claims 1, 5 and 8 were rejected under 35 U.S.C. 103 as being unpatentable over Whitmarsh (US 5,623,226) in view of Harris (U.S. 4,870, 374), and claim 2 was rejected under 35 U.S.C. 103 as being unpatentable over Whitmarsh in view of Harris for reasons set forth in the Office Action.

Claims 3-4 and 6-7 were said to have allowable subject matter.

The following argument is presented to show patentable subject matter in the rejected claims, thereby to overcome the foregoing rejections.

Whitmarsh discloses a transmitter including a Cartesian loop, as does the present specification. Whitmarsh's transmitter has an arrangement, such as Wilkinson's transmitter (discussed in reference to the previous Office Action), for reducing DC offset at the input of the modulators. The essential teaching in Whitmarsh's transmitter is for an arrangement by which the phase of the carrier, used in the reverse branch of the loop, is set for optimizing the loop function. This is a fully different matter than the teaching of the present invention that provides for a reduction of interference by measuring the level of the modulator input signals and adjusting the signal attenuation in a level control unit following the modulator until the modulator input signal levels are suitable.

In the description of Whitmarsh patent, the multipliers 13A and 13B are called "mixers" and the upconversion circuit 6 is called

a "modulator". The multipliers 13A, 13B and the combiner 5 form the modulator, and the upconversion circuit 6 is a mixer, which only shifts the signal spectrum upwards. The Examiner also calls the upconversion circuit 6 a "modulator" and correspondingly the downconversion circuit 10 a "demodulator", possibly because their respective operations can be described mathematically as employing a multiplication. In addition, the examiner states that there are "inherent" level control units in both forward and feedback paths of the transmitter. Whether or not such inherence is present, there is no specific teaching thereof in the reference to anticipate or suggest an element of the present invention.

Harris discloses a phase modulator, where the output signal is combined from four carrier components having different phases (90 degrees between adjacent phases). A modulating baseband signal, such as speech, is divided into four components. The amplitude of each carrier component is modulated by one baseband signal component. Then the carrier components having different phases and variable amplitudes are summed, which results in the eventual carrier with variable phase. In the preferred embodiment of Fig. 3 the feedback, by which the amplitude modulation is implemented, is taken from amplified eventual carrier, in which case a well-controlled phase is achieved and expensive filters are avoided.

The Harris circuitry includes controllable attenuators. However, these attenuators only are used to implement amplitude modulators being parts of the phase modulator. However, there is no suggestion in either Whitmarsh or Harris or a combination of their teachings that addresses the need for such attenuation control circuitry in Whitmarsh, nor suggests where such attenuation control circuitry would be placed in Whitmarsh, nor

as to how such circuitry would be connected among the components of Whitmarsh. The examiner's rejection is based primarily on the teachings of Whitmarsh, the examiner relying on Harris only to supply information on measurement of a modulator signal to adjust an attenuation level (Action, page 3 at line 4). However, it is urged that the combining of the references does not come into question even though one might know of the problems addressed by the present invention and of the solution provided by the present invention. There is no discussion in either of the two references of reduction of interference by control of signal amplitude in a transmitter employing a feedback loop. For this reason, also, there can be no motivation to combine the teachings of the two references.

Furthermore, it appears that the arrangement, in Whitmarsh, of the Cartesian loop is open during test and alignment procedures, and is closed during normal operation wherein the feedback loop is employed only to attain phase (timing) data for operation of the loop phase calculator 3 (Fig. 1). Also, in Harris (Fig. 3), the use of the attenuator 104 in each channel to control amplitude is for the purpose of attaining a desired phase modulation (col. 5 at line 46). There is no suggestion of the use of attenuation to control interference level, as taught by the present invention. The citation of Harris has done no more than to show that it is possible to build the present invention from known components. The combination of the Whitmarsh and Harris teachings fails to give any guidance on reduction of interference, this being an object of the present invention.

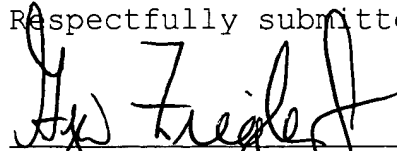
Possibly, the examiner believes the language of the rejected claims is so broad as to fall within the combined teachings of Whitmarsh and Harris. However, present claim 8 recites a

Cartesian loop which, as noted above, is not present during all operations of Whitmarsh. With respect to claims 1 and 5, new claims 9 and 10, which depend respectively from claims 1 and 5, are presented to provide further detail in the construction of the present circuitry, thereby to emphasize the aspect of the Cartesian loop and the locations of the attenuators for reduction of interference in both the methodology of claim 1 and the apparatus of claim 5. Accordingly, it is urged that claims 9 and 10 have allowable subject matter. Furthermore, it is urged that the examiner reconsider the rejections of all of the rejected claims in view of the foregoing argument.

For all of the foregoing reasons, it is respectfully submitted that all of the claims now present in the application are clearly novel and patentable over the prior art of record, and are in proper form for allowance. Accordingly, favorable reconsideration and allowance is respectfully requested. Should any unresolved issues remain, the Examiner is invited to call Applicants' attorney at the telephone number indicated below.

A check in the amount of \$120.00 is enclosed for a one-month extension of time fee. The Commissioner is hereby authorized to charge payment for any fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



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13 May 2005

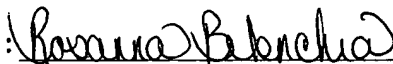
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